

LANDSAT-7 DATA POLICY

(Signed March 21, 2000)

Introduction

Section 105 of Public Law (P.L.)102-555, The Land Remote Sensing Policy Act of 1992, states "The Landsat Program Management (LPM), in consultation with other appropriate United States Government (USG) agencies, shall develop a data policy for Landsat-7...." The law also identifies goals for the policy. This document, in accordance with the law, establishes a data policy for Landsat-7 that provides guidelines for acquiring, processing, archiving, and distributing unenhanced Landsat-7 data products and stipulates the approach to be used for establishing associated prices. The Department of the Interior (DOI), United States Geological Survey (USGS), as the Landsat-7 mission manager, will execute the Landsat-7 Data Policy on behalf of the LPM. The LPM is a joint effort of the National Aeronautics and Space Administration (NASA) and the DOI/USGS.

This Data Policy supplements the Management Plan for the Landsat Program, which defines organizational roles and responsibilities for Landsat-7 system development and operations. As required by P.L. 102-555, this Data Policy is designed to achieve the following:

1. Ensure that unenhanced data are available to all users at the cost of fulfilling user requests;
2. Ensure timely and dependable delivery of unenhanced data to the full spectrum of civilian, national security, commercial, and foreign users, and the National Satellite Land Remote Sensing Data Archive (NSLRSDA);
3. Ensure that the United States retains ownership of all unenhanced data generated by Landsat-7;
4. Support the development of the commercial market for remote sensing data;
5. Ensure that the provision of commercial value-added services based on remote sensing data remains exclusively the function of the private sector;
6. To the extent possible, ensure that the data distribution system for Landsat-7 is compatible with the Earth Observing System Data and Information System (EOSDIS); and, in addition;
7. Encourage research, development, and demonstrations in the applications of remote sensing.

Acquisition

Landsat-7 data acquisitions for the U.S. archive will be directed by the mission goal of acquiring and updating periodically an archive of daytime, substantially cloud-free images of land areas worldwide. In addition to acquiring the periodic worldwide acquisitions for the U.S. archive, Landsat-7 will acquire data on every pass over the United States. However, the USGS will modify the acquisition schedule to accommodate time-critical observations and other requests based on the following priorities:

1. Spacecraft and instrument health and safety;
2. Time-critical acquisitions related to U.S. national security, worldwide natural disasters, and worldwide environmental emergencies;
3. Time-critical acquisitions to support key USG campaigns;
4. Acquisitions critical to the global archive mission; and
5. Acquisition requests from other customers, such as individuals, commercial entities, state or local governments, or academia.

Conflicts in the acquisition schedule will be resolved by the USGS Landsat-7 Mission Management Office according to the priorities listed above and policy guidelines established by the LPM.

The Landsat-7 system will transmit data in real time to receiving sites operated by International Cooperators (ICs). The ICs will receive Landsat-7 data based upon their data acquisition requests, pending the availability of spacecraft assets for providing direct transmission data, and in accordance with conflict-resolution guidelines. Direct-downlink resources will be scheduled in a balanced and equitable manner consistent with the achievement of the U.S. global archive mission goal and in consideration of the data acquisition requests of the ICs. The USGS will develop a standard agreement with each IC that will include provisions for: acquisition scheduling; contingency operations; USG rights to Landsat-7 data; exchange of metadata, browse, and image data; and cost-sharing access fees.

Data Archive

The EDC will generate and archive Level 0R data files, metadata, and browse images for all Landsat-7 data received by the USG Ground Stations. The EDC will provide internet access to the metadata and browse images of all Landsat-7 data in the U.S. archive.

The EDC will archive metadata, browse products, and Landsat-7 data provided by ICs, and maintain a database that references all Landsat-7 data held in ICs' archives. The EDC will provide access to the metadata, and, when available, the browse images of Landsat-7 data provided by ICs, and links to the ICs' web-sites.

Product Generation and Distribution

The EDC will generate and distribute Level 0R, Level 1R, and Level 1G digital data products (see Attachment 1, Data Policy Terminology) for all users on a non-discriminatory basis. The LPM does not restrict the subsequent use, resale, or redistribution of unenhanced Landsat-7 data products distributed from the EDC.

Orders received by the EDC for data from the U.S. archive will be processed and distributed on a first-come, first-served basis. Should the demand for data products exceed the daily product generation and distribution capacity at the EDC, orders will be activated based on the following priorities:

1. Data products related to the calibration of the spacecraft or the ETM+ instrument;
2. Data products for U.S. national security, and for disasters and environmental emergencies worldwide;
3. Data products for time-critical USG studies; and
4. Data products for all other purposes.

The EDC will distribute Landsat-7 data products in standard formats, both on physical media and via electronic transfer.

Pricing

Data product prices are established, based on the terms defined in P.L. 102-555, and other applicable government regulations. Landsat-7 data products are provided to all requesters at the cost of fulfilling user requests (COFUR).

The prices for full-size, single-scene Landsat-7, Level 0R, and Level 1, digital data products announced by LPM on October 31, 1997, will be in effect through FY 2000 (September 30, 2000). Based upon experience gained during Landsat-7 operations, production costs will be reviewed annually and an updated price list published as appropriate.

Commercial Opportunities

The LPM encourages development of the commercial market by providing opportunities for: collocation of ground receiving stations in the U.S. at, or in proximity to, existing USG receiving sites; delivery of data through high-speed communications; acting as distributors for Landsat-7 data; reselling unenhanced data products; and producing and selling value-added data products.

The LPM encourages Landsat-7 users to seek services/data products from the commercial market or to develop user-owned data product-generation capabilities.

LPM does not prohibit the commercial market, or International Cooperators from imposing restrictions on the use, resale, or redistribution of Landsat-7 data products.

Research, Development and Demonstration

The LPM will conduct programs of research and development in the applications of remote sensing. Such programs will include basic research at universities, demonstrations of applications, and cooperative activities involving universities, other Government agencies, private sector parties, and foreign and international organizations.

APPROVED:

(Signed 02/24/00)

Dr. Charles G. Groat
Director, U. S. Geological Survey

Date

(Signed 03/21/00)

Dr. Ghassem Asrar
Associate Administrator for
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Date

Attachment 1 - Data Policy Terminology

Terms

Definition

Browse Image:

Sub-sampled, Level 0R digital image that can be viewed to assess general ground area coverage, data quality, and the spatial relationships between ground area coverage and cloud coverage. A browse image provides a coarse spatial resolution image with a reduced data volume to facilitate screening of archived Landsat-7 data.

Calibration Parameter File:

Parameters required to radiometrically and geometrically correct Level 0R digital image data to generate Level 1R or 1G data products. The parameters are based on calibration of the ETM+ and the Landsat-7 spacecraft.

International Cooperator:

Any non-US government agency, or commercial organization acting on behalf of or in cooperation with an international government agency, that enters into an agreement with the USGS for purposes of receiving Landsat-7 data.

Landsat Program Management:

The team of DOI and NASA managers who are responsible for determining policy and oversight of the Landsat program. The team is represented by a Landsat Coordinating Group that includes the NASA Associate Administrator for Earth Science and the Director of the USGS.

Level 0R Data Product:

This product represents the lowest level of Landsat-7 Enhanced Thematic Mapper Plus (ETM+) imagery available for dissemination from the U.S. Government-held archives. It contains digital imagery that are reformatted raw data acquired by the ETM+ as it views the Earth. Reformatting includes: 1) reversing the order of the reverse scan data, 2) aligning the staggered detectors from the focal array, 3) nominal alignment of the forward and reverse scans and, 4) nominal alignment of the bands. The pixel data values are not altered or resampled in any way. Ancillary files included with the product contain information necessary for performing advanced radiometric and geometric processing of the image data. The data products are generated on request from a data user and distributed in Hierarchical Data Format (HDF).

Level 1R Data Product:

A radiometrically corrected ETM+ digital Earth image along with the files containing metadata, calibration parameters, payload correction data, mirror scan correction data, a geolocation table, and internal calibration lamp data. The digital image pixels are not resampled for geometric correction and registration. Level 1R data products are generated on request and the data are packaged and formatted for distribution to the data user.

Level 1G Data Product:

A radiometrically corrected and geometrically corrected ETM+ digital Earth image along with metadata. In this systematically corrected product, the radiometrically corrected pixels are resampled for geometric correction and registration to a user-specified map projection. Level 1G data products are generated on request and the data are packaged and formatted for distribution to the data user. The product may have a geodetic error as large as 250 meters circular error (1 sigma) due to horizontal and vertical uncertainties.

Metadata:

Descriptive information pertaining to the associated data files or data products. Information includes location and spatial coverage of the digital image data, acquisition date, associated file content, and data quality. Metadata are generated for the Level 0R data files and for the Level 0R, 1R, and 1G data products.

Unenhanced Data:

Land remote sensing signals or imagery products that are unprocessed or subject only to data preprocessing. Data preprocessing includes: (a) rectification of system and sensor distortions in land remote sensing data as it is received directly from the satellite in preparation for delivery to a user; (b) registration of such data with respect to features of the Earth; and (c) calibration of spectral response with respect to such data.